

PATHFINDER KINDERGARTEN CENTER

MUKILTEO SCHOOL DISTRICT | EVERETT, WASHINGTON



Pathfinder Kindergarten Center:

A journey to an unprecedented facility

Following a state-mandated shift to all-day kindergarten, Mukilteo School District faced an imminent need for instructional space across the district. In lieu of adding kindergarten classrooms to multiple elementary schools, the leadership identified an opportunity to create a centralized resource by constructing a kindergarten-only school to serve approximately 600 students.

The students would be bussed in from across the district, however, within the district’s boundaries, there is a sharp divide between the rich and the poor. Navigating these distinct socioeconomic and community differences while designing a school that accommodated for, yet unified, proved to be a challenging feat.

Initially, the district desired that the design of the new facility would allow for later conversion into a traditional K-5 school. After exploring this idea further, it was decided that this mindset

would limit the age-specific design which could better serve the specific needs of a kindergarten student.

The final result creates spaces to support early learning, while maximizing the synergy provided by age-specific students. In an effort to maximize learning, the school program was redefined to reduce time lost to transitions. Teachers and specialists push into the classrooms, allowing the students to stay in their respective pods. Larger programs that require more space (e.g. dining and project areas) are broken down into smaller spaces and dispersed into the pods. In addition, the indoor environmental quality (temperature, air quality, daylighting, and acoustics) required diligent attention given its significant effect on learning. Experiential connections to nature and outdoor learning are established through secure adjacent play areas, daylight, operable windows, and building features.



REDUCE TRANSITIONS

Reduce transitions to increase the time for learning



MANAGE SCALE

By breaking down the typical scale of a large school, learners feel a sense of ownership and belonging



COLLABORATIVE ENVIRONMENT

Re-think community connections and allow opportunities for parent involvement



DO WHAT IS BEST FOR LEARNING

Transform from an operations-centric model to a student-centric one



INDOOR ENVIRONMENTAL QUALITY

Daylighting and indoor air quality enrich the learning process



PUSH-IN MODEL

Learning comes to the learner. Specialized instruction is delivered to core learning environments



MOVE TO LEARN

Research shows strong correlations between physical movement and increased brain function



SAFE & SECURE

The facility has layers of security, including increased visual connections

What would it look like if we designed schools specifically for **kindergartners?**

This was the central question that the district and design team sought to answer in the design of Pathfinder Kindergarten Center.

Serving 600 kindergarten students in one facility has its unique challenges. How can educators manage this many young learners in one place? Designing for a single age cohort required the design team to "forget" their preconceptions about traditional elementary school design. There was a fundamental need to challenge everything. Hence, the team embarked on a robust planning process in attempt to reshape existing paradigms.



Project **Scope**

OWNER:
MUKILTEO SCHOOL DISTRICT

LOCATION:
EVERETT, WASH.

OCCUPANCY DATE:
SEPTEMBER 2017

GRADE:
K

STUDENT CAPACITY:
600 STUDENTS

BUILDING AREA:
65,000 SF

SF/STUDENT:
108 SF/STUDENT

SITE AREA:
9.25 ACRES (KINDERGARTEN ONLY)

CONSTRUCTION COST:

BUDGET: **\$24,900,000**

BID: **\$24,483,000**

FINAL COST: **\$25,850,515**

BUILDING CONSTRUCTION COST/SF:
\$397.70/SF





Community Engagement

As the team met with staff, students, and community members during the early stages of the design, the intent was to foster dialogue, and idea generation, ensuring each voice was heard.

Building upon the District's Guiding Principles and Mission,

...to help prepare our community's children to be successful, contributing members of the community,

the facility's design focused on five key points:

- **Creating Connections**
- **Building a Community**
- **Personalized Educational Opportunities**
- **Focusing on Learning**
- **School Identity**



CHALLENGES

The design of Pathfinder Kindergarten Center began with the identification of three significant challenges: to house full-day kindergarten up to 600 students in one building, share a tight site with the existing Fairmount Elementary School, and fulfill an unprecedented program – as the first kindergarten-only school in the district. These challenges were then translated into a series of guiding principles which became invaluable during the design process.

OVERCOMING BARRIERS

To address these challenges, the design advisory committee was asked to define pedagogical ideals specific to kindergartners that might inform spatial requirements. It was agreed upon that the best way to deal with the large student body was to have teachers move around the school to the students instead of having students

move from space to space as they would normally do in a traditional K-5 school. Student movement would be limited to each pod, and large program spaces (e.g. dining and music) were broken down into four smaller spaces and installed in each pod. This programmatic direction led to the consolidation of all teaching offices into a centralized staff Collaboratorium, where teachers can gather and exchange ideas instead of being isolated across the school.

STAKEHOLDER ENGAGEMENT

The design team led several empathetic exercises with the stakeholders to genuinely connect with the specific needs of a kindergarten student that would be representative of any community in the district. This included a series of workshops, "day in the life" activities, observational analyses, research, surveys, and local school tours.

DESIGN PROCESS TIMELINE

START OF
DESIGN

1

WORKSHOP 1

2

TOURS

3

WORKSHOP 3

4

WORKSHOP 4

5

ECO-CHARETTE

6

MEETING 6

7

MEETING 7

8

MEETING 8

SCHEMATIC
DESIGN

Fostering a sense of **Community & Identity**

Kindergarten can be an exciting time for some, but nerve-wracking for others. Pathfinder Kindergarten Center seeks to ease students into a daily school rhythm. The building's organization breaks down the massive scale of the facility into smaller pods and further promotes a sense of comfort, identity, and community within each learning suite.

*...I think that the design really lends itself to a **family-kind of community**, and I think it has huge impact.*

- EDUCATOR



Kindergartners' Needs: Unraveled

The first step in designing a single-cohort facility requires a comprehensive understanding of the unique needs of the early learner. The design team conducted a series of investigations to more deeply understand these needs, including observing and identifying the habits of existing kindergarten classes. The observations highlighted three key findings:

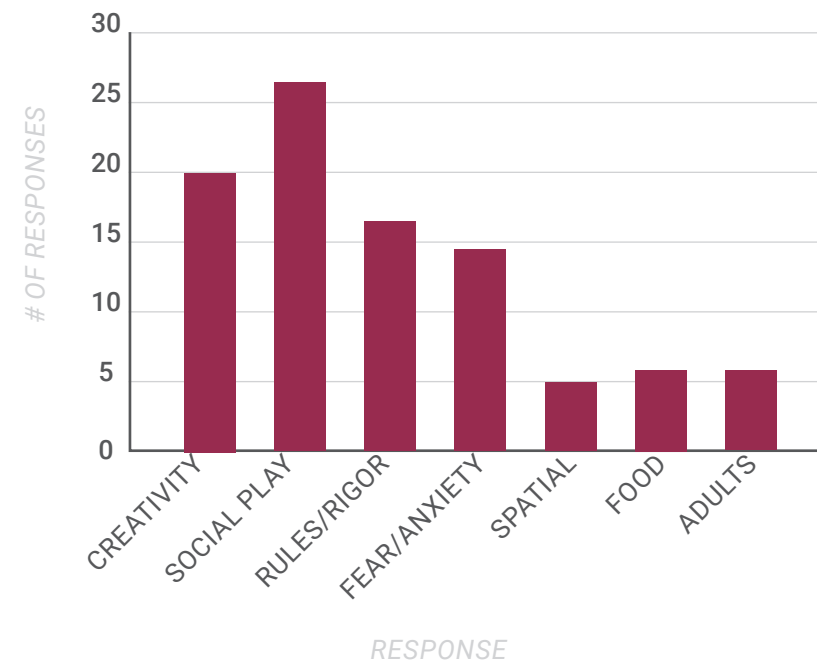
- **Transitions take time** (students needing special instruction are pulled out, losing valuable learning time)
- **Rigor** (do's & don'ts are heavily enforced)
- **Creativity is stifled** (art and creativity are stifled by the framework of the day)

Furthermore, we surveyed adults asking about their key recollections of kindergarten. Their responses were categorized, finding a high percentage of responses focused on play and creativity, but surprisingly, equally as many were related to fear, anxiety, and rules. By asking this simple question, the team began to really consider how we could alleviate some of this childhood anxiety.



Photos taken during pre-design observations at an existing kindergarten classroom.

WHAT WAS YOUR FIRST MEMORY OF ENTERING KINDERGARTEN?



*An unofficial poll of our staff resulted in 75+ responses

Learning Models: **Reimagined**

To reduce transition time, the design team introduced two concepts: **push-in specialists** and **decentralization of services**. Forming smaller communities within the school, each pod includes essential components allowing students to remain in their pod for all their daily needs.

This push-in instructional model resulted in a lack of dedicated space for specialists who require working space as a team. This limitation, coupled with the kindergarten focus, created an opportunity to create a robust professional development space that we called the **collaboratorium** (as seen here).

This is incredible. I've never sat next to a spec teacher. We were always in our own little island, and would never talk.

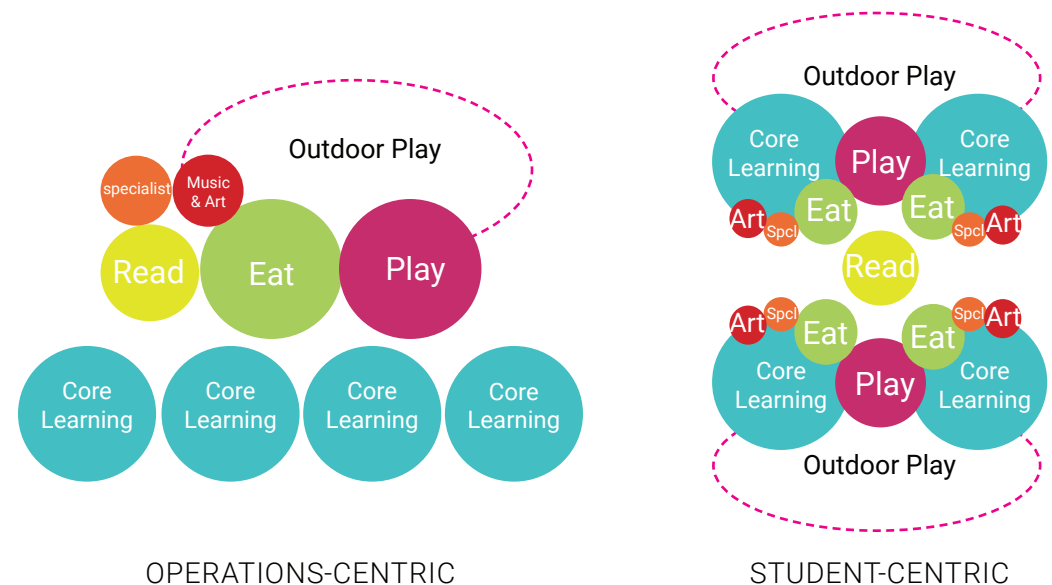
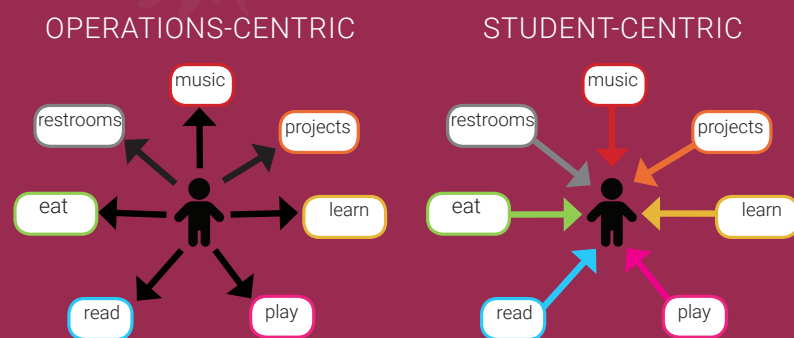
- SPECIALIST



Learning Time: Recaptured

As a result of moving away from an operation-centric model and towards a student-centric one, transition time was drastically diminished. Larger programs, like dining and specialist areas are broken down into smaller breakout spaces and dispersed throughout pods. Teachers and specialists push into classrooms, allowing students to stay in their respective classrooms and utilize the breakout spaces throughout their pods.

We estimated this child-centric approach would reduce daily transition times by half.



Learning Pods: Fluidity & Scale

A school of 600 5-year olds could be frightening for children away from their moms, dads, and siblings for the first time. The design addresses this challenge by diverting the students into four pods (two upstairs and two at ground level). Each pod consists of six classrooms, allowing 25-student classes. Each classroom has a cozy, child-size nook and has been abundantly furnished with play and learn stations for small groups of 3-4 students, or alone time. The effect of this spatial solution on the psyche of young learners has been underestimated.



The building's organization is informed by the Golden Section and a nautilus-shaped parti.

- | | | |
|---------------------|-------------------|----------------------|
| 1 dining | 6 play | 11 specialist office |
| 2 shared / projects | 7 library | 12 workroom |
| 3 classroom | 8 reception | 13 kitchen |
| 4 toilet | 9 book room | |
| 5 team office | 10 teacher lounge | |



BUMBLEBEE



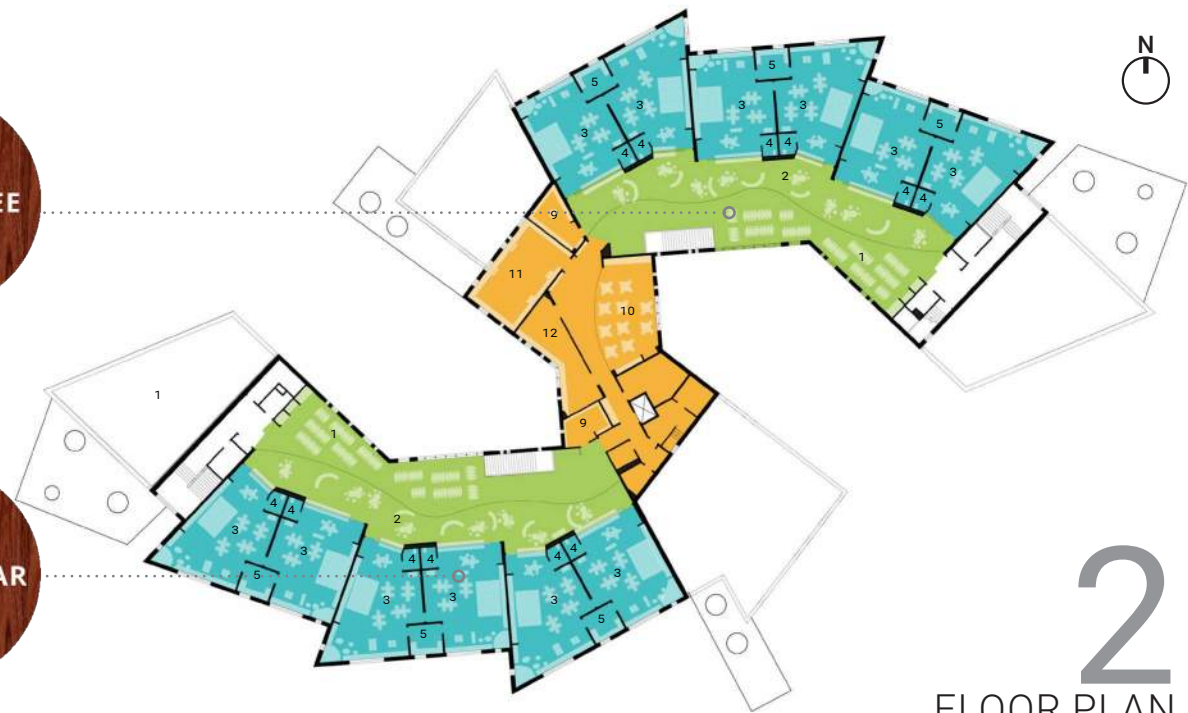
CATERPILLAR



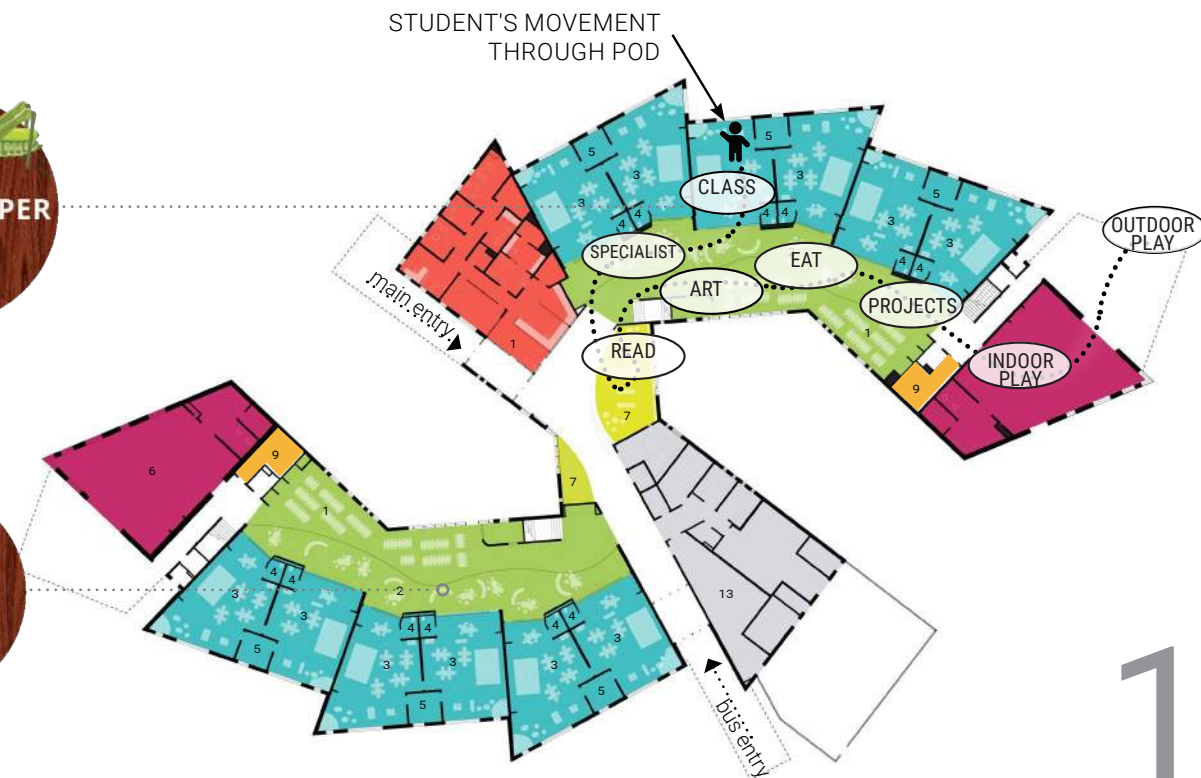
GRASSHOPPER



LADYBUG



2
FLOOR PLAN



1
FLOOR PLAN

Flexible **Intimacy**

Maximizing flexibility for an unprecedented density of kindergarten students, dining spaces are distributed between pods, making eating a more intimate activity, and also allowing for advanced adult supervision.





Responsive **Learning Spaces**

Diversity in learning spaces accommodates for future pedagogical change and allows for a plurality in learning styles. Breakout spaces allow specialists to work with students directly outside their classrooms.



Promoting Health & Wellbeing: **Daylighting & Thermal Comfort**

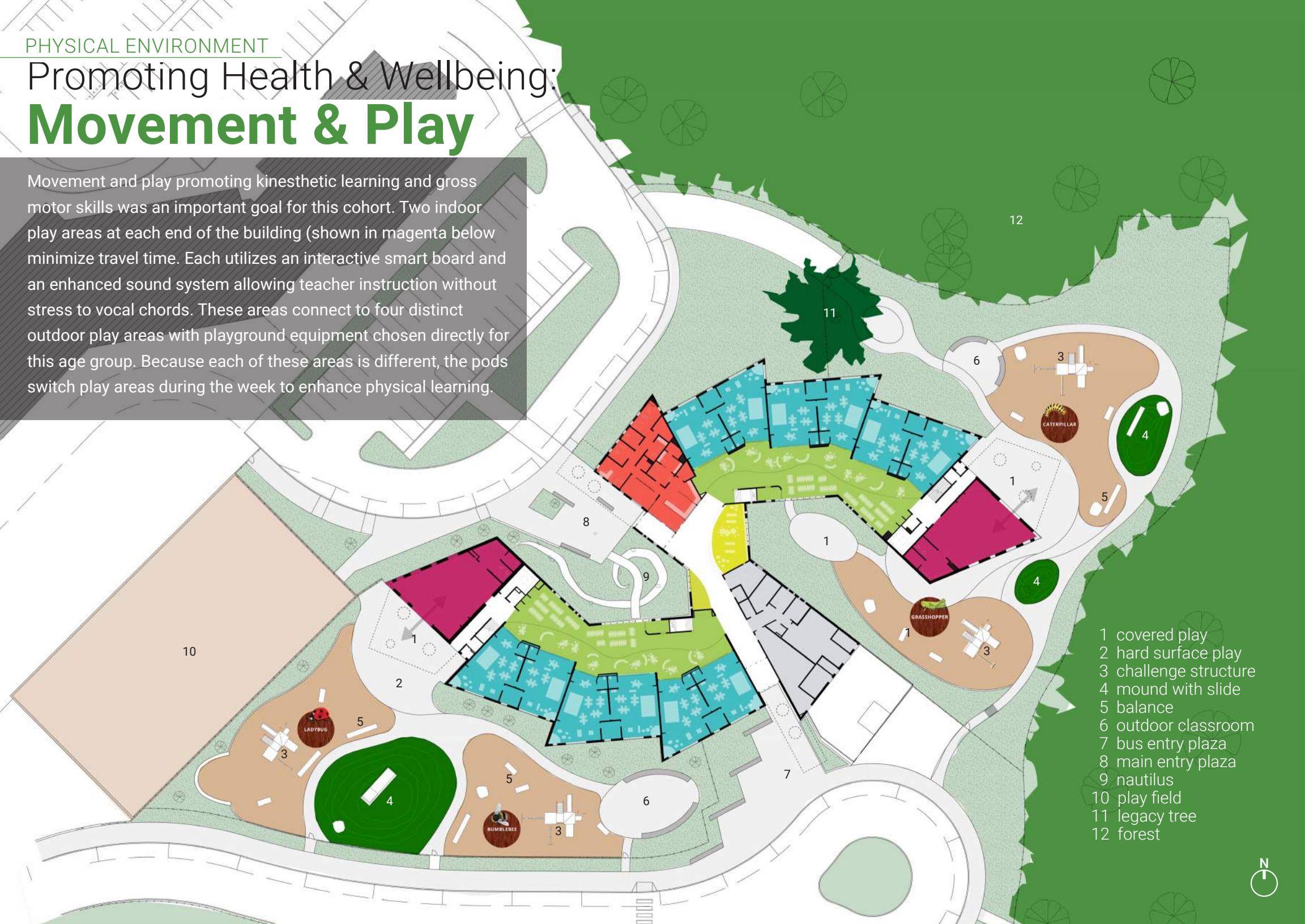
Pathfinder Kindergarten Center is modeled to meet or exceed building standards by a variety of methods including: geothermal heating and cooling, high-efficiency windows, passive solar design, operable windows, highly efficient building materials for the wall and roof structure (continuous rigid insulation at walls, SIPs panels at roof assembly), as well as radiant slab heating.

The radiant floors, heated by a geothermal pump, accommodate for extensive and comfortable learning on the floor.



Promoting Health & Wellbeing: Movement & Play

Movement and play promoting kinesthetic learning and gross motor skills was an important goal for this cohort. Two indoor play areas at each end of the building (shown in magenta below) minimize travel time. Each utilizes an interactive smart board and an enhanced sound system allowing teacher instruction without stress to vocal chords. These areas connect to four distinct outdoor play areas with playground equipment chosen directly for this age group. Because each of these areas is different, the pods switch play areas during the week to enhance physical learning.



- 1 covered play
- 2 hard surface play
- 3 challenge structure
- 4 mound with slide
- 5 balance
- 6 outdoor classroom
- 7 bus entry plaza
- 8 main entry plaza
- 9 nautilus
- 10 play field
- 11 legacy tree
- 12 forest



Promoting Health & Wellbeing: **Movement & Play**

Closely connected creative spaces support full-day kindergarten curriculum and inspire the “learning through play” nature of this age group.



Promoting Health & Wellbeing: **Connect to Nature**

Pathfinder's site is nestled between an existing elementary school to the west and a series of wetland areas that border the school and play areas to the north, east, and south. Creating a welcoming, safe surrounding for the school while preserving and enhancing the connection to rich ecological environments required thoughtful attention to the landscape architecture and adjacencies. Play and outdoor learning create transition zones between building elements and nature. Adjacent wetland buffers provide robust opportunities to view and study the flora and fauna beyond the school's perimeter fencing.

A variety of plazas and play areas encourage active and passive play, outdoor learning, and interaction between students, teachers and parents. Classes regularly rotate between the play areas to keep children engaged and excited about outdoor activities.

Planting materials focus on northwest native and drought-tolerant shrubs and trees to provide wildlife habitat and highlight natural processes. Natural elements like boulders, logs, storm swales, and mounded hills are integrated into the play and outdoor learning areas in a durable and safe fashion to allow children to interact with nature.









Minimizing the building's **Visual Mass**

Every piece of the school environment is designed specifically to the size of a kindergartner. It was important to limit the building's footprint and scale to make the environment more approachable for kindergarten students. Wayfinding used throughout identifies the different pods and further breaks down the building into a smaller scale.



Biophilic Design

The emphasis on connection to nature and outdoor learning is enhanced through adjacent play areas, daylight and operable windows that provide experiential connections for these young learners. Given the significant effect on learning, indoor environmental quality received diligent attention, including details such as temperature, air quality, daylighting, and acoustics.

The environmental murals and visual graphics throughout the facility focus on natural elements, evoking a playful element that inspires students to explore.



PHYSICAL ENVIRONMENT



Drawing from Natural Forms

Designing a school exclusively suited to the needs of kindergartners should place students at the heart of the school. Due to its inherent presence in the human and natural world, The Golden Section was utilized as an organizing element of the building based around a nautilus-shaped parti. The origin point for the building stems from a space sized for an individual kindergartner, focused on supporting the individual student, and providing critical adjacencies and connection to nature. From here, the individual spaces aggregate proportionally to form larger shared group spaces for collaborative learning, while framed views to the exterior allow opportunities for exploration and observation.

The color palette (shown left) was carefully chosen to incorporate natural, organic, and soft materials found in nature.

Post-Occupancy Study

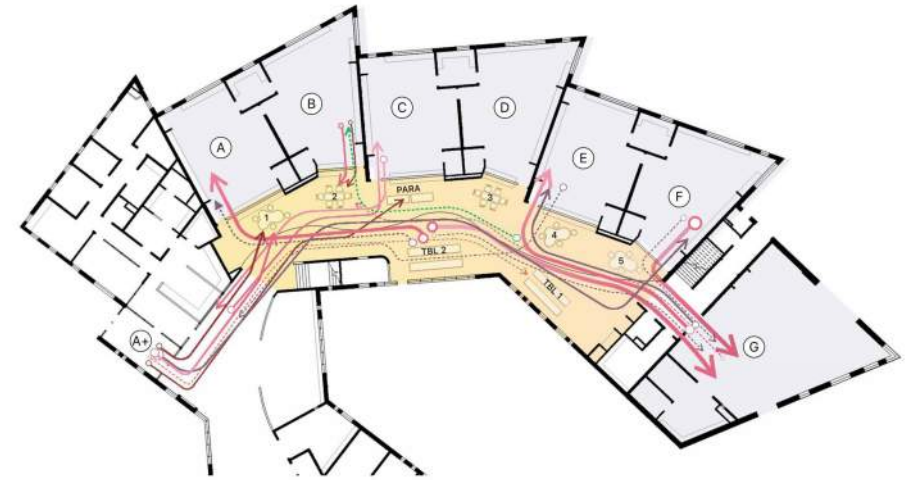
A year after occupation, the design team and a third-party researcher conducted a post-occupancy study to identify the design effectiveness in reducing timely transitions in a typical school day between activities and spaces. The goal was to test the idea of a modern-day 21st century kindergarten school and how to improve its efficiency for future use.

This user research included three elements: interviews (to empathize with what users think and say), behavioral observations (to study the users' action and why they do what they do), and photographic traces (to identify how the spaces are being used).

Initial findings of the study support the design hypothesis that transitions can be decreased through this model to provide more time in the learning environment. In addition, a second research comparison at another district school is being used to compare transition times in a comparable learning environment. The findings support over 7 school days (45 hours) of learning time recaptured.

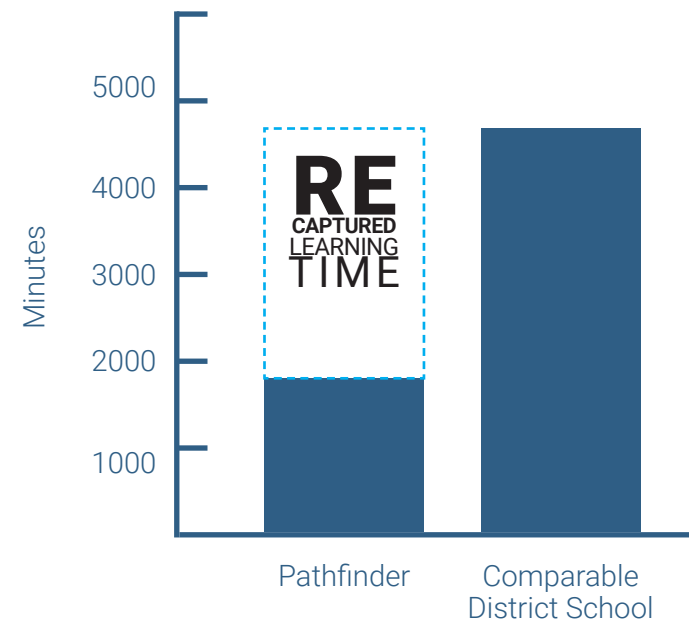


TOTAL MOVEMENT AT CLASSROOM POD



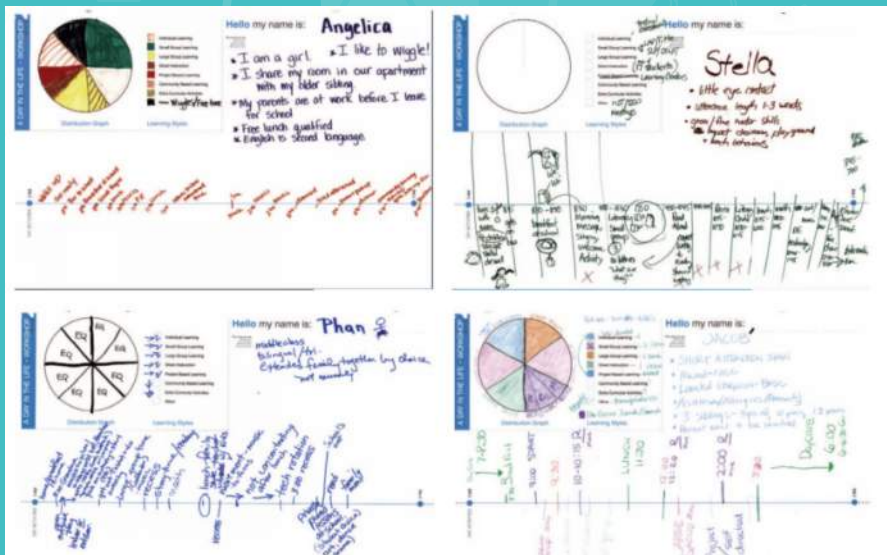
Time of Observation		9:30am - 10:55am	Location		Typical Pod at Caterpillar
TYPE OF USERS	○ → Student	○ → Instructor	○ → Teacher	○ → Food Service	○ → Visitor
NUMBER OF USERS	— >20 Users	— 15-20 Users	— 5-10 Users	— 2-5 Users	— 1 User

MINUTES SPENT IN TRANSITION
(PER YEAR)



Learner Centric

The Educational Specifications (included separately) provide a more focused look at the design. Foundational to the design team's work in developing these specifications was that everyone deeply understood the unique needs of kindergarten-age learners. We used various empathetic exercises to like "A Day in the Life," shown below, to consider the needs of a future kindergartner in the district. Observation, tours, and research all were very influential in building the final specifications.



A Day in the Life of a future kindergarten student

CORE TENETS

Reduced Transitions

Moving from our place takes a lot of time with learners of this age. By reducing transitions, we increase the time for learning.

Managing Scale

For many of our learners, this is their first schooling experience. We understand that this could be a stressful and intimidating moment. We need to break down the scale of the large school into smaller clusters so the learners have a sense of ownership and content.

Collaborative Environments

Re-think community connections, allow opportunities for parents to be involved and partner with educators and utilize resources at the facility.

Do What is Best for Learning

Many processes in school are driven by operational needs rather than best practices for teaching and learning. An example is food service: food service is usually at one central location. Here we will bring the food to the learners. This provides smaller dining areas that are more appropriate for this age group while still reducing transition time.

"Push-In"

Learning comes to the learner. Specialized instruction will be delivered, in most part, to the core learning environments.

High Interior Environmental Quality

Daylighting and indoor air quality are important factors that effect the learning process. Access to high quality daylight has been shown to positively effect brain function. Ensuring good indoor air quality is also believed to reduce illness and improve alertness. The more students are prepared for learning, the more learning can happen.

Move to Learn

Research is showing strong correlations between physical movement and increased brain function. We encourage our learners to move. Careful consideration to furniture that promotes movement as well as a learning environment that encourages movement goes a long way to activate the minds of our learners.

Safe and Secure

Our students safety is of paramount importance to us. We believe that safe buildings do not need to feel institutional. In order to do this, our buildings will have "layers" of security. Various sections of the building will be securable with the push of a button. Visibility of all areas of the building is crucial.

A Consistent Consensus

The early findings of our post-occupation study demonstrate the impact and importance that switching to a student-centric model has on an early learner's development.

...there's that constant collaboration going on...whereas, in a traditional classroom you're in a room with yourself and the students and then with the support staff, they're usually in their own offices...With this, we're all together, and we're sharing.

-EDUCATOR

All of us that have been teaching have never seen kindergartners go as far academically as they have here.

-EDUCATOR